Evaluating Liability of Artificial Intelligence Systems: A Comparative Analysis with Special Reference to India

Synopsis of the Research Proposal

Submitted for the Registration in the

Ph.D. Programme (Part-time) in Law

By

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Under Supervision of

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S.No.	Content List	Page No.
1.	Abstract	4
2.	Title	4
3.	Introduction	4-5
4.	Review of Literature	5-12
5.	Research Gaps	12
6.	Statement of Research Problem	13
7.	Significance of the study	13
8.	Research Objectives	13-14
9.	Research Questions	14
10.	Research Hypotheses	14
11.	Research Methodology	14
12.	Scope and Limitations	14-15
13.	Research Timeline	15
14.	Expected Outcome of the Research	15
15.	Bibliography	16-18

1. Abstract:

The introduction of Artificial Intelligence (AI) has signalled a transformative era, fundamentally reshaping the way we live and work. From healthcare and finance to transportation and law enforcement, its influence is felt across almost every major sector. However, as AI systems become more independent, their ability to make autonomous decisions introduces a complex set of legal and moral hurdles.

A significant issue arises when we try to determine who is at fault for a crime committed by an autonomous machine. In traditional criminal law, specifically within the Indian legal framework, establishing liability requires two essential components: the physical act of the crime (**actus reus**) and the mental intent or "guilty mind" (**mens rea**). While an autonomous AI can certainly perform a physical action, it lacks a human consciousness and therefore cannot possess intent; it simply executes its underlying code. Because of this, standard legal theories often conclude that AI cannot be held criminally responsible since it fails to meet the basic criteria of a crime.[1]

This research aims to find a way through this "accountability gap." While it is easy to look toward the manufacturers, developers, or operators for answers, these human-centric solutions often fail to address instances where an AI acts truly independently, moving beyond the direct control or foresight of its creators.

Keywords: Artificial Intelligence, liability, autonomous action, accountability

2. Title:

Evaluating Liability of Artificial Intelligence Systems: A Comparative Analysis with Special Reference to India

3. Introduction:

Artificial Intelligence came about as a helping hand to the humankind. Slowly and steadily, it became a part of the live of human beings, be it in medical sectors or transportation or finance. With such a steady use of Artificial Intelligence the challenges to keep a control over the use of AI needed to be established. Where different countries have been implying various

[11]Fatima Dakalbab, Manar Abu Talib, et el., "Artificial Intelligence & Crime Prediction: A Systematic Literature Review", 6 Social Sciences & Humanities Open 142 (2022).

norms and regulations to govern Artificial Intelligence, India has also been trying to impose restrictions on misuse of AI.

When any offence is committed by AI the question arises as to the implication of liability. The liability could be vicarious or criminal. But criminal law has two essentials of crime i.e., mens rea and actus reus. Mens rea means guilty mind. A person needs to have a guilty mind in order to commit an offence, except for some offences which impose strict liability irrespective of mens rea.

Actus reus means guilty act. In order to complete an offence, there should be an illegal act which needs to be done. While imposing these essentials, the traditional legal theory says that it can only be imposed on a human being as a robot or artificial intelligence does not have its own mind. Thus, leading to the implication of liability on the developer/programmer or the owner of such AI. This is the vicarious liability. However, the debate arises when an autonomous AI system does any criminal act then the imposition of liability becomes a problem. The research is focused on the legal framework which needs to be established for the governance and liability of AI under the Indian Law.

4. Literature Review:

Since its birth in 1956, Artificial Intelligence has undergone an extraordinary evolution, achieving more in less than a century than most could have imagined. What started as a theoretical concept is now a standard part of our daily lives, woven into the very fabric of modern society. However, this rapid growth brings a difficult challenge: how do we build a legal structure that keeps pace with such a fast-moving technology? The goal is to create rules that protect our fundamental rights and clarify our duties without accidentally stepping on them.

India is right at the heart of this global conversation. Currently, Indian policymakers and regulatory bodies are working hard to design a system for responsible AI governance. Yet, even with these efforts, one massive question remains unanswered: when an AI makes a mistake, who carries the blame? The issue of "AI liability" remains the missing piece in the regulatory puzzle, leaving a significant gap in our legal understanding.

1) **RaajdwipVardhan (2025) -** There are some autonomous vehicles which are capable of making independent decisions depending upon the environment and situations. These vehicles do not require human intervention but when such a vehicle has any accident or causes any injury then it becomes difficult to identify criminal liability. The author

questions whether can possess mens rea or not and whether the criminal liability would be clear after granting juristic personhood to AI. It says that AI can act under actus reus but mens rea cannot be applied due to the 'black box problem'.

2) **Sujeet Kumar and Md. Tauseef Alam (2025) -** This book deals with the issues relating to the personhood of AI and the liability which might be imposed on AI through different models. The book also suggests about the strict liability concept on the developers and programmers in cases where the public safety is concerned. The book discusses about the turing test and international approaches of AI.
3) **Dr. Pradeep Kumar and Dr. Gaurav Gupta (2025) -** This book in its chapter's 4 and 6 deals with the law relating to Artificial Intelligence and Personhood of AI. The book discusses the various traditional theories of Juristic Personality. It defends that legal personhood has been provided to non -legal entities as well thus, AI should also be provided legal personhood. The book evaluates that AI can even violate fundamental rights. It expresses its concern on the implication of Motor Vehicles Act, 1988 on AI.
4) **Dwiti Gambhir & Raghu Raja Mehra (2025) -** This paper focuses on the autonomy of AI and the opacity causing hindrance in accountability and complicating the litigation process. It also focuses on the 'electronic personhood' debate. It says the OECD and UNESCO are focusing on the governance, transparency and ethics rather than focusing on having a specified accountability model. It also compares the legal approach of EU, USA and India towards AI. Where EU has risk-based approach classifying the AI systems, USA and India have fragmented approaches legal to state level rules and IT frameworks.
5) **Harshita Saharavat(2025) -** The author is focused on the question of who shall be accountable if AI does any harm. The paper discusses the various examples where the producer or person incharge of the system have take due care still the AI system makes a mistake and harm is done. Here, the liability becomes difficulty to be imposed. The paper focuses on the concept of 'responsibility gap'. It also mentions the laws enforced in India which are dealing with criminal liabilities do not clearly specify the AI generated offences.
6) **HifajataliSayyed (2024)** - In his study contended that AI does not have a criminal intent rather, a human intervention is necessary for the AI to do an act with criminal intent. The Indian criminal laws have been reviewed and observed that AI does not have a proper guideline or legal framework for legal personhood, accountability gaps and weak data protection laws which govern AI. It has also been argued that AI is capable of performing

autonomous functions and thus it should be given the legal identity. It even suggests that there should be ethical AI development and data privacy compliance.

7) **Chityal G.S.(2024) -** It concerns the AI powered phishing attacks, data breaches, automated cybercrime and deepfake evidence tampering which raises a question on the data privacy, evidence authenticity and individual rights. The paper deeply analysis the lack of Indian Penal Code and Information Technology Act dealing with the regulation of AI autonomous systems. It extends the discussion on corporate and product liability. The paper considers EU's General Data Protection Regulation (GDPR) as a model for addressing AI related data misuse and privacy breaches.
8) **Jafar Ali Hammouri (2024) -** The author has tried to examine the criminal liability of AI entities. He has examined the three-liability model and has expressed concerns relating to the self-driving AI systems and has also discussed about the moral agency in AI crimes. This shall keep the focus on humans only when a crime is committed by AI. Thus the paper suggests that the liability should only be shared amongst the AI developers, owners and operators.
9) **Stawan Khara and Shraddha Yadav (2024) -** The paper focuses on giving AI the legal identity. It justifies AI being given the legal identity by explaining that in India companies, idols, rivers, etc. have also been provided legal status. It also talks about civil liability, where it becomes difficult to establish whether the harm was a result of defective product, poor programming or independent or autonomous decision of AI. It suggests that there are loopholes in the Indian laws and thus different legal aspects should be adopted in India.
10) **Thanush S. (2024) -** This paper concerns about ways in which legal responsibility can be assigned when AI systems act unpredictably or involuntarily. The criminal liability model proposed by Hallvey has also been discussed. Furthermore, civil liability of the AI has also been discussed. It has been said that its becomes difficult to impose civil liability as well when the AI acts independently. The paper brings in a comparative international perspective by discussing the US approach towards liability.
11) **Tanmay Agrawal (2024) -** In his researchwork the author discusses the status of AI in India. He moves on to explore the various legal theories such as Fictionalism theory. Capacities and Autonomy Theory, Functionalist Theory, etc. The two major examples discussed in order to show the current legal boundaries were- grant of citizenship to Sophia the robot in Saudi Arabia and rejecting the applications of invention made in

favour of an AI system named DABUS as inventorship can only be granted to a natural person as per the international patent law.

12) **Jyoti Dharm et.al. (2024)** – The article focuses on criminal as well as civil liability. The article tries to clarify on four barriers not allowing to hold AI criminally liable. These barriers include difficulty in causation, opacity, outpacing of legislative responses due to technological evolution and the diffusion of responsibility. It also talks about the civil liability which is imposed on the basis of negligence, product liability and vicarious liability theories.
13) **Guruprem Monga (2023) -** This paper explains the 'black box' nature and opacity of AI making it hard to make a single human actor responsible. It also gives the insight on the fact that if AI has a traditional data which is biased then in such a case AI can take biased decisions. The perfect example for which has been encountered by US in the Pro Publica investigation of Compass (Correctional Offender Management Profiling for Alternative Sanctions).
14) **Andreas Nanos (2023) -** The paper questions the legal liability of AI in autonomous actions. The author explains that in current legal framework AI works as an agent of the developer, operator, etc, establishing the principal agent relationship principle. The author's concern is that in the present time AI functions only as instruments or objects in crime and not as perpetrator. The author says that the use of autonomous AI systems can give the humans a defence of algorithmic defect to escape from any criminal liability.
15) **N. Jeyakkannan (2023) -** The author clarifies that when a large number of transactions are directed towards the contract, it can cause overload to the system leading to delay or prevention in legitimate interactions. The paper is simulation-based and focuses on the working of the AI system and explains the technicalities of the working of an AI.
16) **Nadia Yas et al. (2023) -** The paper tries to focus on the theories of civil liability whether they are appropriate and efficient enough to deal with AI related liabilities. The three major types of civil liability for AI related harms have been discussed, which are- Contractual liability, tortuous liability which is based on fault and Objective or strict theory. The author also discusses about the various compensations which are provided to the victims.
17) **Fatima Dakalbab (2022)** - This paper explains the utility of AI in crime prediction. 120 research papers were observed in order to understand the predictability of future events. These future events would be amongst the 34 categories of crimes enlist by the author. The author tries use the present data about a particular place or locality in order to detect

any ‘hotspots’ where an offence might be committed. The limitations discussed involved the algorithmic bias and quality of data set which could lead to a theoretical approach rather than practical. The techniques to be adopted were discussed which would be for better working of these predictions.

18) **K. Wiedemann (2022) –** The article examines the relationship between profiling and decision-making processes within the framework of the General Data Protection Regulation (GDPR). It challenges the prevalent notion that these two concepts are merely overlapping or synonymous. The paper instead advocates two step approach under the GDPR. The two-step approach are- profiling is a separate step and also the first step, Decision making is a separate step whether executed by a person or an automated system.
19) **Soyer &Tettenborn (2022) –** The paper examines that whether the rise of Artificial Intelligence brings about the need to have a new civil liability framework or are the principles of tort enough to deal with this technology. The author has rejected the suggestion of granting AI an ‘electronic personhood’ contending that it a human made artefact and does not have any morality or independent rights. He further adds that tort law is sufficient to deal with the liabilities in case of AI as core values of tort law are corrective justice, compensation of victims and deterrence.
20) **Rohan Gupta (2021)** – The paper gives explanation as to the effect of AI in health care sector. It says that the AI is being used for drug discovery and development as well. It could analyze vast datasets to identify potential drug candidates and predict their effectiveness, potentially accelerating the drug development process. Here if any negligence is done by AI based on its analysis, a life would be at risk resulting into an offence. The liability to such offence will be hard to be imposed. Thus, AI- specific regulatory frameworks are necessary.
21) **Roman Dremliuga& Natalia Prisekina (2020)** - It clarifies that AI can be seen as a ‘tool with its own cognition and will’ creating a complication on understanding the guilt and intention. It says that when developer/ programmer does not have intention and an offence is committed, the accountability might question the innovation but leaving it unpunished might encourage irresponsibility. The paper clarifies that the traditional laws on culpability cannot handle AI’s partial autonomy.
22) **Nora Osmani (2020)** - The paper says that there is no clear accountability as to the criminal liability of AI. It explores the accountability of company through the concept of corporate and vicarious liability. It also explains that the relationship of AI with humans as that of animal with humans and thus liable for negligence. The self-learning systems

need a proper legal framework as the current criminal liability theories are not sufficient to encounter them and if proper legal framework is not made then the accountability gap might persist.

23) **Sara Gerke (2020) -** The author tries to clarify the concerns being raised on the adoption of AI in the healthcare sector. The concerns include ethical and legal issues such as biased datasets leading to discriminatory results or medical data breaches and AI manipulation risks. It also involves unclear liability in case of harm to any patient by AI. There have been question as the ownership of AI generated ownership. It gives a comparative study of medical use of AI in various different countries like USA, Europe, etc.

24) **Sadaf Fahim and G.S. Bajpai (2020) -** The discussion of the paper revolves around the question whether AI should be given the legal status or not, referring to Saudi Arabia humanoid Sophia. It also focuses on the problem that if an error occurs because of automated surgical system then it is unclear who should be held liable. The authors try to explore the concept 'direct liability' on AI by assessing the capability of AI to fulfill the requirements of actus reus and mens rea. The paper also questions the probability of AI claiming the defense of 'insanity' while malfunctioning.

25) **Maxim Dobrinoiu (2019)** – The paper discusses the criminal liability of AI. It suggests that the AI should have moral or intentional capacity for criminal liability. It emphasises that AI should be given legal identity which means giving riving rights to AI and imposing obligation on it like a human being but in a controlled manner. It also explains that there might be some ethical challenges which might occur while providing legal personhood to 'electronic persons'. It gives reference to European proposal of civil law on robotics which recognised electronic personhood.

26) **J.S. Borghetti (2019) -** The paper brings in the debate on the focus of civil liability. The author presents that the civil liability should address the harm caused by AI systems including autonomous or self-learning algorithms. He tries to find a solution to define defective AI system. He explains that the definition is changing with evolution in technologies especially when applied to autonomous.

27) **Ankit Kumar Padhy& Amit Kumar Padhy (2018)** - The author questions whether mens rea and actus reus be imposed on a non-human. This paper analysis the liability of AI and suggests an alternate to the punishments which could be imposed on AI. It says that in place of death penalty AI could be granted the punishment of permanent deletion of software whereas in place of imprisonment punishment of temporary deletion of

software may be granted. The paper also suggests that AI could also provide community service as an alternative.

28) **Mindaugas Naučius (2018)** – The paper has distinguished between semi-autonomous AI (where human intervention is present) and autonomous AI system (decisions are made without human intervention). The author proposes different models of liability which includes Electronic Personhood model. This model creates a special legal identity for AI just like corporate entity. But it also says that complete criminal liability on AI systems could cause the humans to escape from their liability. The paper recommends hybrid liability models.

29) **Joanna Bryson et.al (2017)** - The author tries to bring the emphasis on "when a legal system confers legal rights and obligations on an entity, it has determined to treat that entity as though it were a person in fact. It is kind of a pretence in which legal systems can decide to engage, regardless of whether an entity really is a person."

30) **Gabriel Hallevy (2016) -** The authorresearches on the liability on AI entities and proposes three models for the same, which could explain their liabilities in a better manner: 1) Perpetration-via-Another Liability Model, 2) Natural-Probable-Consequence Liability Model, and 3) Direct Liability Model. These models clarify as to what kind of liability can be imposed on AI. The question as to whether AI should be given a legal status needs to be answered in order to impose a criminal liability. If AI is not given a criminal liability a legal individual it might act as an abettor or accomplice.

31) **NITI Aayog,** ***National Strategy for Artificial Intelligence, 2018*** **-** The roadmap of AI adoption is in an inclusive, ethical and social manner. The major sectors covered are healthcare, agriculture, education, smart cities and smart mobility. It also identifies the barriers which India needs to overcome such as high costs, limited awareness amongst people, privacy and data protection gaps, etc. Itclearly shows the attention of the policy makers towards the governance of AI but could not resolve the problem of criminal liability under the Penal Code.

32) **European Parliament Study (2020) -** This study which is commissioned by the European Parliament's Committee on Legal Affairs checks the suitability of civil laws. The major four areas covered in this are – defining of AI, the concept of electronic personhood, evaluation of the adequacy of EU product liability law and suggesting reforms on the basis of case studies. The key contribution of the study is in the field of Product Liability Directive (PLD).

33) **The Indian Penal Code, 1860 (IPC) and the Bhartiya Nyaya Sanhita, 2023 (BNS) -** The Criminal law of India presupposes two essentials to commit an offence: a) mens rea (guilty mind) b) actus reus (guilty act). The Indian Penal Code,1860 (IPC) and the Bhartiya Nyaya Sanhita, 2023 (BNS) both govern on the same theories, but AI lacks the connection between evil intent and evil action. The Indian Penal Code did not explicitly deal with AI. Only certain provisions relating negligence could have had the purview to deal with AI. Due to the lack of advanced legal framework, it is quite difficult to develop a relationship between humans and AI in respect of criminal liability.

34) **Regulation (EU) 2024/1689 (2024) -** This is the European Union Act made for the governance of Artificial Intelligence. It aims to protect the Fundamental Rights and EU values while pacing AI in the market. It also safeguards health and safety and promotes innovation. The approach adopted in the Act is a risk-based approach. The regulations are such which would govern the system on the basis of the risk it possess, for example, Prohibited AI practices are unacceptable risk and are being banned from being placed in the market.

35) **Meghna Bal and N S Nappinai -** This report analyses as to the extent to which the developers, programmers, etc should be held liable for the harm done by AI. It also suggests that excessive punishment could cause the lack of innovation. It also illustrates four detailed cases studies based on- deepfake spread o social media, AI chat assistant errors, Medical AI diagnosis and autonomous vehicle accidents. It also discusses about the challenges which are being faced and discusses the solution which can be adopted in order to have better accountability.

36) **Cleve Wootson Jr., The Washington Post (2017) -** It is an article from the Washington Post where it was discussed that Saudi Arabia being a country which imposes restriction on women has given citizenship to a humanoid robot named Sophia.

5. Research Gaps:

1) There is lack of study imposing liability under Indian Law or any other Indian legal framework.
2) Absence of any clear concept relating to interpretation of mens rea or actus reus on AI or clarification as to the personhood of AI.
3) No existing framework distributing responsibility between programmers, deployers, and corporate entities.

6. Statement of the Research Problem:

India's technological landscape has shifted at an extraordinary pace. In has moved rapidly from introduction of basic telecommunications to the era of Artificial Intelligence. Today, AI is no longer a futuristic concept rather it is a fundamental part of our daily existence. It has manifested autonomous systems like self-driving vehicles and intelligent medical tools that make critical decisions in hospitals without a human being in the loop.

While these advancements offer incredible benefits, their independence creates a significant safety risk. Because AI can function without direct human oversight, its actions can occasionally lead to financial setbacks, physical injuries, or even the loss of life. When such incidents occur, we find ourselves in a legal grey area.

Currently, our legal system lacks a standardized method for evaluating stakeholders or calculating financial compensation when AI causes harm. This raises pressing questions: how does the Indian legal framework handle the liability of self-governing machines? Furthermore, what specific legislative reforms are necessary to ensure that Artificial Intelligence remains accountable to the society it serves? This research focuses on bridging that gap, moving from a system of technical wonder to one of clear ethical and legal responsibility.

7. Significance of the Study:

The study focuses on establishing an engagement between the acts of autonomous AI systems and their liability under the Indian law. It shall also clarify that if liability needs to be imposed on AI, then it should also be given the status of personhood. When imposing liability rights shall also be given to AI.

8. Research Objectives:

1) To examine the existing legal framework governing the liability on AI system and check whether AI can be given the status of a legal personhood to imposition of liability.
2) To analyse the conceptualization of mens rea and actus reus and its implementation on AI autonomous systems.
3) To compare the international approach on liability of AI with existing Indian laws.
4) To conduct stakeholders analysis and provide framework for civil damages computation for harm caused by AI.

5) To give suggestions and policies which India could adopt in order to regulate AI- related offences in India.

9. Research Questions:

1) Can AI system be given the status of a legal personhood so as to impose the liability?
2) How to establish *mens rea* and *actus reus* when an AI system causes harm or commits an offence?
3) How to determine the liability of programmers, deployers, and corporate entities in deploying AI systems?
4) What framework should be developed for the computations of civil damages for harm caused by AI?
5) What insights can India derive from the comparative of criminal liability of AI in countries like European Union, United Kingdom and United States of America?

10. Research Hypotheses:

1) The Indian Legal System lacks legal framework for determining liability of AI and lacks damage computation framework or any penal measures.
2) Best international practices on liability of AI have not been incorporated in existing laws on AI in India.

11. Research Methodology:

The research involves a doctrinal methodology whereby the existing data and policies have been referred and possible regulatory framework that could be developed has been checked. The doctrinal research includes the national and international perspective being studied through online sources such as journals, online databases like Manupatra and use of reference books from library.

12. Scope and Limitations of the Research:

- **Scope**

The present research will be conducted in order to bridge the gap of liability on autonomous and semi-autonomous AI system focusing especially on the provisions of Indian Law. The study will try to determine the best possible policy which can be adopted by the Indian policy

makers by a comparative study of the laws enforced or proposed in the countries like United Kingdom, United States of America and European Union.

- **Limitations**

1) The research is completely based on doctrinal study which includes the analysis of existing research papers, journals, books, etc.
2) Lack of AI governance laws in other countries for reference.

13. Research Timeline:

S.No.	Phase	Months	Targets
1.	1	1-4 Months	Introduction to research problem
2.	2	5-9 Months	Study the Indian Legal Position of Artificial Intelligence
3.	3	10-14 Months	Analyze Comparative Legal Framework
4.	4	15-19 Months	Formulate Suggestions and Recommendationsfor Policy Framing
5.	5	20-24 Months	Draft Conclusion

14. Expected Outcomes of the Research:

1) Development of a conceptual framework for imposing liability to AI systems under Indian law.
2) Recommendations for amendments to Indian law to consolidate AI-related liability.
3) A model framework for distributed liability among AI developers, deployers, and corporations.
4) Contribution to the global discourse on AI responsibility from an Indian perspective.

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